

**Plug-in Reference**



# **CUBASE AI<sub>5</sub>**

Integrated Music Production System



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## **The included effect plug-ins**

# Introduction

This chapter contains descriptions of the included plug-in effects and their parameters.

In Cubase AI, the plug-in effects are arranged in a number of different categories. This chapter is arranged in the same fashion, with the plug-ins listed in separate sections for each effect category.

⇒ Most of the included effects are compatible with VST3, this is indicated by an icon in front of the name of the plug-in as displayed in plug-in selection menus (for further information, see the chapter “Audio Effects” in the Operation Manual).

# Delay plug-ins

This section contains descriptions of the plug-ins in the “Delay” category.

## MonoDelay



This is a mono delay effect that can either be tempo-based or use freely specified delay time settings.

The parameters are as follows:

Parameter	Description
Delay	This is where you specify the base note value for the delay if tempo sync is on (1/1–1/32, straight, triplet or dotted). If tempo sync is off, it sets the delay time in milliseconds.
Tempo sync on/off	The button below the Delay Time knob is used to turn tempo sync on or off. If set to off, the delay time can be set freely with the Delay Time knob, without sync to tempo.
Feedback	This sets the number of repeats for the delay.
Filter Lo	This filter affects the feedback loop of the effect signal and allows you to roll off low frequencies from 10Hz up to 800 Hz. The button below the knob activates/deactivates the filter.
Filter Hi	This filter affects the feedback loop of the effect signal and allows you to roll off high frequencies from 20kHz down to 1.2kHz. The button below the knob activates/deactivates the filter.
Mix	Sets the level balance between the dry signal and the effect. If MonoDelay is used as a send effect, this should be set to maximum as you can control the dry/effect balance with the send.

# PingPongDelay



This is a stereo delay effect that alternates each delay repeat between the left and right channels. The effect can either be tempo-based or use freely specified delay time settings.

The parameters are as follows:

Parameter	Description
Delay	This is where you specify the base note value for the delay if tempo sync is on (1/1–1/32, straight, triplet or dotted). If tempo sync is off, it sets the delay time in milliseconds.
Tempo sync on/off	The button below the Delay Time knob is used to turn tempo sync on or off. If set to off, the delay time can be set freely with the Delay Time knob, without sync to tempo.
Feedback	This sets the number of repeats for the delay.
Filter Lo	This filter affects the feedback loop and allows you to roll off low frequencies up to 800Hz. The button below the knob activates/deactivates the filter.
Filter Hi	This filter affects the feedback loop and allows you to roll off high frequencies from 20kHz down to 1.2kHz. The button below the knob activates/deactivates the filter.
Spatial	This parameter sets the stereo width for the left/right repeats. Turn clockwise for a more pronounced stereo “ping-pong” effect.
Mix	Sets the level balance between the dry signal and the effect. If PingPongDelay is used as a send effect, this should be set to maximum as you can control the dry/ effect balance with the send.

# Distortion plug-ins

This section contains descriptions of the plug-ins in the “Distortion” category.

## AmpSimulator



AmpSimulator is a distortion effect, emulating the sound of various types of guitar amp and speaker cabinet combinations. A wide selection of amp and cabinet models is available.

The parameters are as follows:

Parameter	Description
Drive	Governs the amount of amp overdrive.
Bass	Tone control for the low frequencies.
Middle	Tone control for the mid frequencies.
Treble	Tone control for the high frequencies.
Presence	Use this to boost or damp the higher frequencies.
Volume	This controls the overall output level.
Amplifier pop-up menu	This allows you to select between various amplifier models. Click on the currently selected amplifier name to open a pop-up with all the available amplifier models. This section can be bypassed by selecting “No Amp”.
Cabinet pop-up menu	Various speaker cabinet models. Click on the currently selected cabinet name to open a pop-up with all the available amplifier models. This section can be bypassed by selecting “No Speaker”.
Damping Lo/Hi	Further tone controls for shaping the sound of the selected speaker cabinet. Click on the values, enter a new value and press the [Enter] key.

# DaTube



This effect emulates the characteristic warm, lush sound of a tube amplifier.

The parameters are as follows:

Parameter	Description
Drive	Regulates the pre-gain of the “amplifier”. Use high values if you want an overdriven sound just on the verge of distortion.
Balance	This controls the balance between the signal processed by the Drive parameter and the dry input signal. For maximum drive effect, set this to its highest value.
Output	Adjusts the post-gain, or output level, of the “amplifier”.

# Distortion



Distortion will add crunch to your tracks.

The parameters are as follows:

Parameter	Description
Boost	Increases the distortion amount.
Feedback	This parameter feeds part of the output signal back to the effect input, increasing the distortion effect.
Tone	Lets you select a frequency range to which to apply the distortion effect.
Spatial	Changes the distortion characteristics of the left and right channel, thus creating a stereo effect.
Output	Raises or lowers the signal going out of the effect.

# Dynamics plug-ins

This section contains descriptions of the plug-ins in the “Dynamics” category.

# Gate



Gating, or noise gating, silences audio signals below a certain set threshold level. As soon as the signal level exceeds the set threshold, the gate opens to let the signal through.

The available parameters are as follows:

Parameter	Description
Threshold (-60–0dB)	This setting determines the level where Gate is activated. Signal levels above the set threshold trigger the gate to open, and signal levels below the set threshold will close the gate.
State LED	This indicates whether the gate is open (LED lights up in green), closed (LED lights up in red) or something in between (LED lights up in yellow).
Filter buttons	When the Side-Chain button (see below) is activated, you can use these buttons to set the filter type to either Low Pass, Band Pass or High Pass.
Side-Chain on/off	This button (below the Center knob) activates the filter. The input signal can then be shaped according to set Center and Q-Factor parameters which may be useful in tailoring how the Gate operates.
Center (50Hz–20000Hz)	Sets the center frequency of the filter.
Q-Factor (0.01–10000)	Sets the Resonance of the filter.
Monitor (On/Off)	Allows you to monitor the filtered signal.



Parameter	Description
Attack (0.1–1000ms)	This parameter sets the time it takes for the gate to open after being triggered. If the Live button (see below) is deactivated, it will ensure that the gate will already be open when a signal above the threshold level is played back. Gate manages this by “looking ahead” in the audio material, checking for signals loud enough to pass the gate.
Hold (0–2000ms)	This determines how long the gate stays open after the signal drops below the threshold level.
Release (10–1000ms or Auto mode)	This parameter sets the amount of time it takes for the gate to close (after the set hold time). If the Auto button is activated, Gate will find an optimal release setting, depending on the audio material.
Analysis (0–100) (Pure Peak to Pure RMS)	This parameter determines whether the input signal is analyzed according to Peak or RMS values (or a mixture of both). A value of 0 is pure Peak and 100 pure RMS. RMS mode operates using the average power of the audio signal as a basis, whereas Peak mode operates more on peak levels. As a general guideline, RMS mode works better on material with few transients such as vocals, and Peak mode better for percussive material, with a lot of transient peaks.
Live mode (On/Off)	When activated, Live mode disengages the “look ahead” feature of the Gate. Look ahead does produce more accurate processing but will add a certain amount of latency as a trade-off. When Live mode is activated, there is no latency, which might be better for “live” processing.

## Limiter



Limiter is designed to ensure that the output level never exceeds a certain set output level, to avoid clipping in following devices. Limiter can adjust and optimize the Release parameter automatically according to the audio material, or it can be set manually. Limiter also features separate meters for the input, output and the amount of limiting (middle meters).

The available parameters are the following:

Parameter	Description
Input (-24–+24dB)	Allows you to adjust the input gain.
Output (-24–+6dB)	This setting determines the maximum output level.
Release (0.1–1000ms or Auto mode)	This parameter sets the amount of time it takes for the gain to return to its original level. If the Auto button is activated, Limiter will automatically find an optimal release setting that varies depending on the audio material.

## MIDI Gate



Gating, in its fundamental form, silences audio signals below a certain set threshold level. That means, when a signal rises above the set level, the Gate opens to let the signal through while signals below the set level are cut off. MIDI Gate, however, is a Gate effect that is not triggered by threshold levels, but instead by MIDI notes. Hence it needs both audio and MIDI data to function.

### Setting up

MIDI Gate requires both an audio signal and a MIDI input to function.

To set it up, proceed as follows:

1. Select the audio to be affected by the MIDI Gate. This can be audio material from any audio track, or even a live audio input (provided you have a low latency audio card).
2. Select the MIDI Gate as an insert effect for the audio track. The MIDI Gate control panel opens.

3. Select a MIDI track to control the MIDI Gate.

This can be an empty MIDI track, or a MIDI track containing data, it doesn't matter. However, if you wish to play the MIDI Gate in real-time – as opposed to having a recorded part playing it – the track has to be selected for the effect to receive the MIDI output.

4. Open the Output Routing pop-up menu for the MIDI track and select the MIDI Gate option.

The MIDI Output from the track is now routed to the MIDI Gate.

What to do next depends on whether you are using live or recorded audio and whether you are using real-time or recorded MIDI. We will assume for the purposes of this manual that you are using recorded audio, and play the MIDI in real-time.

Make sure the MIDI track is selected and start playback.

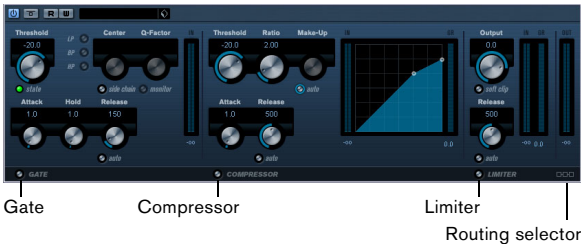
5. Now play a few notes on your MIDI keyboard.

As you can hear, the audio track material is affected by what you play on your MIDI keyboard.

The following MIDI Gate parameters are available:

Parameter	Description
Attack	This is used for determining how long it should take for the Gate to open after receiving a signal that triggers it.
Hold	Regulates how long the Gate remains open after a Note On or Note Off message (see Hold Mode below).
Release	This determines how long it takes for the Gate to close (in addition to the value set with the Hold parameter).
Note To Attack	The value you specify here determines to which extent the velocity values of the MIDI notes should affect the Attack. The higher the value, the more the Attack time will increase with high note velocities. Negative values will give shorter Attack times with high velocities. If you do not wish to use this parameter, set it to the 0 position.
Note To Release	The value you specify here determines to which extent the velocity values of the MIDI notes should affect the Release. The higher the value, the more the Release time will increase. If you do not wish to use this parameter, set it to the 0 position.
Velocity To VCA	This controls to which extent the velocity values of the MIDI notes determine the output volume. A value of 127 means that the volume is controlled entirely by the velocity values, while a value of 0 means that velocities will have no effect on the volume.
Hold Mode	Use this switch to set the Hold Mode. In Note-On mode, the Gate will only remain open for the time set with the Hold and Release parameters, regardless of the length of the MIDI note that triggered the Gate. In Note-Off mode on the other hand, the Gate will remain open for as long as the MIDI note plays, and then apply the Hold and Release parameters.

VSTDynamics



VSTDynamics is an advanced dynamics processor. It combines three separate processors: Gate, Compressor and Limiter, covering a variety of dynamic processing functions. The window is divided into three sections, containing controls and meters for each processor.

Activating the individual processors

You activate the individual processors using the buttons at the bottom of the plug-in panel.

The Gate section

Gating, or noise gating, is a method of dynamic processing that silences audio signals below a certain set threshold level. As soon as the signal level exceeds the set threshold, the gate opens to let the signal through. The Gate trigger input can also be filtered using an internal side-chain.

The available parameters are as follows:

Parameter	Description
Threshold (-60–0dB)	This setting determines the level where Gate is activated. Signal levels above the set threshold trigger the gate to open, and signal levels below the set threshold will close the gate.
state	This indicates whether the gate is open (LED lights up in green), closed (LED lights up in red) or something in between (LED lights up in yellow).
Side-Chain on/off	This button activates the internal side-chain filter. This lets you filter out parts of the signal that might otherwise trigger the gate in places you don't want it to, or to boost frequencies you wish to accentuate, allowing for more control over the gate function.
LP (Low pass), BP (Band pass), HP (High pass)	These buttons set the basic filter mode.
Center (50–22000Hz)	This sets the center frequency of the filter.

Parameter	Description
Q-Factor (0.001–10000)	This sets the resonance or width of the filter.
Monitor (On/Off)	Allows you to monitor the filtered signal.
Attack (0.1–100ms)	This parameter sets the time it takes for the gate to open after being triggered.
Hold (0–2000ms)	This determines how long the gate stays open after the signal drops below the threshold level.
Release (10–1000ms or Auto mode)	This parameter sets the amount of time it takes for the gate to close (after the set hold time). If the Auto button is activated, Gate will find an optimal release setting, depending on the audio material.

## The Compressor section

Compressor reduces the dynamic range of the audio, making softer sounds louder or louder sounds softer, or both. Compressor functions like a standard compressor with separate controls for threshold, ratio, attack, release and make-up gain parameters. Compressor features a separate display that graphically illustrates the compressor curve shaped according to the Threshold, Ratio and MakeUp Gain parameter settings. Compressor also features a Gain Reduction meter that shows the amount of gain reduction in dB, and a program dependent Auto feature for the Release parameter.

The available parameters work as follows:

Parameter	Description
Threshold (-60–0dB)	This setting determines the level where Compressor “kicks in”. Signal levels above the set threshold are affected, but signal levels below are not processed.
Ratio (1:1–8:1)	Ratio determines the amount of gain reduction applied to signals over the set threshold. A ratio of 3:1 means that for every 3dB the input level increases, the output level will increase by only 1 dB.
Make-Up (0–24dB)	This parameter is used to compensate for output gain loss, caused by compression. When Auto is on, gain loss will be compensated automatically.
Attack (0.1–100ms)	This determines how fast Compressor will respond to signals above the set threshold. If the attack time is long, more of the early part of the signal (attack) will pass through unprocessed.
Release (10–1000ms or Auto mode)	Sets the amount of time it takes for the gain to return to its original level when the signal drops below the Threshold level. If the Auto button is activated, Compressor will automatically find an optimal release setting that varies depending on the audio material.
Graphic display	Use the graphic display to graphically set the Threshold or the Ratio value.

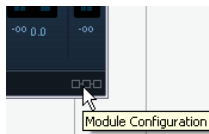
## The Limiter section

Limiter is designed to ensure that the output level never exceeds a certain set output level, to avoid clipping in following devices. Conventional limiters usually require very accurate setting up of the attack and release parameters, to prevent the output level from going beyond the set threshold level. Limiter adjusts and optimizes these parameters automatically, according to the audio material. You can also adjust the Release parameter manually.

The available parameters are the following:

Parameter	Description
Output (-24–+6dB)	This setting determines the maximum output level. Signal levels above the set threshold are affected, but signal levels below are left unaffected.
Soft Clip (On/Off)	Soft Clipper acts differently compared to the limiter. When the signal level exceeds -6 dB, SoftClip starts limiting (or clipping) the signal “softly”, at the same time generating harmonics which add a warm, tubelike characteristic to the audio material.
Release (10–1000ms or Auto mode)	This parameter sets the amount of time it takes for the gain to return to its original level when the signal drops below the threshold level. If the Auto button is activated, Limiter will automatically find an optimal release setting that varies depending on the audio material.

## The Module Configuration button



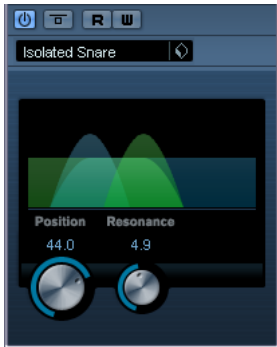
In the bottom right corner of the plug-in panel you will find a button with which you can set the signal flow order for the three processors. Changing the order of the processors can produce different results, and the available options allow you to quickly compare what works best for a given situation. Simply click the Module Configuration button to change to a different configuration. There are three routing options:

- C-G-L (Compressor-Gate-Limit)
- G-C-L (Gate-Compressor-Limit)
- C-L-G (Compressor-Limit-Gate)

# Filter plug-ins

This section contains descriptions of the plug-ins in the “Filter” category.

## DualFilter

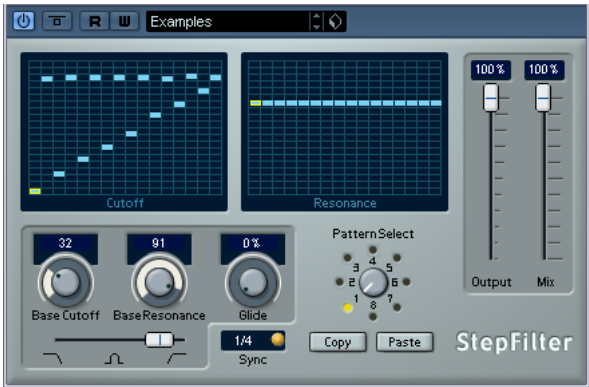


This effect filters out certain frequencies while allowing others to pass through.

The following parameters are available:

Parameter	Description
Position	This parameter sets the filter cutoff frequency. If you set this to a negative value, DualFilter will act as a low-pass filter. Positive values cause DualFilter to act as a high-pass filter.
Resonance	Sets the sound characteristic of the filter. With higher values, a ringing sound is heard.

## StepFilter



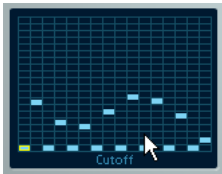
StepFilter is a pattern-controlled multimode filter that can create rhythmic, pulsating filter effects.

### General operation

StepFilter can produce two simultaneous 16-step patterns for the filter cutoff and resonance parameters, synchronized to the sequencer tempo.

### Setting step values

- Setting step values is done by clicking in the pattern grid windows.
- Individual step entries can be freely dragged up or down the vertical axis, or directly set by clicking in an empty grid box. By click-dragging left or right, consecutive step entries will be set to the pointer position.



Setting filter cutoff values in the grid window.

- The horizontal axis shows the pattern steps 1–16 from left to right, and the vertical axis determines the (relative) filter cutoff frequency and resonance setting. The higher up on the vertical axis a step value is entered, the higher the relative filter cutoff frequency or filter resonance setting.

- By starting playback and editing the patterns for the cut-off and resonance parameters, you can hear how your filter patterns affect the sound source connected to StepFilter directly.

### Selecting new patterns

- Created patterns are saved with the project, and up to 8 different cutoff and resonance patterns can be saved internally.  
Both the cutoff and resonance patterns are saved together in the 8 Pattern memories.
- To select new patterns you use the pattern selector. New patterns are all set to the same step value by default.



Pattern Selector

### Using pattern copy and paste to create variations

You can use the Copy and Paste buttons below the pattern selector to copy a pattern to another pattern memory location, which is useful for creating variations on a pattern.

- Select the pattern you wish to copy, click the Copy button, select another pattern memory location and click Paste. The pattern is copied to the new location, and can now be edited to create variations using the original pattern as a starting point.

### StepFilter parameters

Parameter/Value	Description
Base Cutoff	This sets the base filter cutoff frequency. Cutoff values set in the Cutoff grid window are values relative to the Base Cutoff value.
Base Resonance	This sets the base filter resonance. Resonance values set in the Resonance grid window are values relative to the Base Resonance value. Note that very high Base Resonance settings can produce loud ringing effects at certain frequencies.
Glide	This will apply glide between the pattern step values, causing values to change more smoothly.
Filter Mode	This slider selects between low pass (LP), band pass (BP) or high pass (HP) filter modes (from left to right respectively).
Sync 1/1 to 1/32 (Straight, Triplet or Dotted)	This sets the pattern beat resolution, i.e. what note values the pattern will play in relation to the tempo.

Parameter/Value	Description
Output	Sets the overall volume.
Mix	Adjusts the mix between dry and processed signal.

## ToneBooster

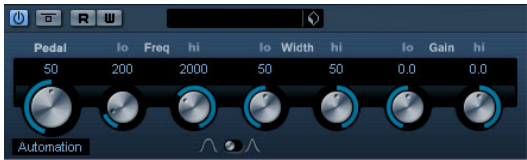


ToneBooster is a filter that allows you to raise the gain in a selected frequency range. It is particularly useful when inserted before AmpSimulator in the plug-in chain (see [“AmpSimulator”](#) on [page 7](#)), greatly enhancing the tonal varieties available.

The following parameters are available:

Parameter	Description
Tone	This sets the center filter frequency.
Gain	Allows you to adjust the gain of the selected frequency range by up to 24 dB.
Width	This sets the resonance of the filter.
Mode	This sets the basic operational mode of the filter; Peak or Band pass.

# WahWah



WahWah is a variable slope band pass filter that can be auto-controlled via MIDI modeling the well-known analog pedal effect (see below). You can independently specify the frequency, width and the gain for the Lo and Hi Pedal positions. The crossover point between the Lo and Hi Pedal positions is at 50.

The parameters are as follows:

Parameter	Description
Pedal	This controls the filter frequency sweep.
Freq Lo/Hi	Sets the frequency of the filter for the Lo and Hi Pedal positions.
Width Lo/Hi	Sets the width (resonance) of the filter for the Lo and Hi Pedal positions.
Gain Lo/Hi	Sets the gain of the filter for the Lo and Hi Pedal positions.
Filter Slope	Specifies the slope of the filter; 6dB or 12dB.

## MIDI control

For real-time MIDI control of the Pedal parameter, MIDI must be directed to the WahWah plug-in.

- Whenever the WahWah has been added as an insert effect (for an audio track or an FX channel), it will be available on the Output Routing pop-up menu for MIDI tracks. If WahWah is selected on the Output Routing menu, MIDI will be directed to the plug-in from the selected track.

# Modulation plug-ins

This section contains descriptions of the plug-ins in the “Modulation” category.

## AutoPan



This is a simple autopan effect. It can use different waveforms to modulate the left-right stereo position (pan), either using tempo sync or manual modulation speed settings.

The parameters are as follows:

Parameter	Description
Rate	If tempo sync is on, this is where you specify the base note value for tempo-syncing the effect (1/1 to 1/32, straight, triplet or dotted). If tempo sync is off, the auto-pan speed can be set freely with the Rate knob, without sync to tempo.
Tempo sync on/off	The button below the Rate knob is used to switch tempo sync on (the button lights up) or off.
Width	Sets the depth of the AutoPan effect.
Shape	Sets the modulation waveform. Sine and Triangle waveforms are available.
Side-Chain on/off	A signal routed to the Side-Chain input of the effect can control the Width parameter when this is activated. For a description of how to set up Side-Chain routing, see the chapter “Audio effects” in the Operation Manual.

# Chorus



This is a single stage chorus effect. It works by doubling whatever is sent into it with a slightly detuned version.

The parameters are as follows:

Parameter	Description
Tempo sync on/off	The button below the Rate knob is used to switch tempo sync on or off. The button is lit when tempo sync is on.
Rate	If tempo sync is on, this is where you specify the base note value for tempo syncing the chorus sweep (1/1 to 1/32, straight, triplet or dotted). If tempo sync is off, the sweep rate can be set freely with the Rate knob, without sync to tempo.
Width	This determines the depth of the chorus effect. Higher settings produce a more pronounced effect.
Spatial	This sets the stereo width of the effect. Turn clockwise for a wider stereo effect.
Mix	Sets the level balance between the dry signal and the effect. If Chorus is used as a send effect, this should be set to maximum as you can control the dry/effect balance with the send.
Delay	This parameter affects the frequency range of the modulation sweep, by adjusting the initial delay time.
Shape	This changes the shape of the modulating waveform, altering the character of the chorus sweep. Sine and triangle waveforms are available.
Filter Lo/Hi	These parameters allow you to roll off low and high frequencies of the effect signal, respectively.

# Flanger



Flanger is a classic flanger effect with added stereo enhancement.

The parameters are as follows:

Parameter	Description
Tempo sync on/off	The button below the Rate knob is used to switch tempo sync on or off. The button is lit when tempo sync is on.
Rate	If tempo sync is on, this is where you specify the base note value for tempo syncing the flanger sweep (1/1 to 1/32, straight, triplet or dotted). If tempo sync is off, the sweep rate can be set freely with the Rate knob, without sync to tempo.
Range Lo/Hi	This sets the frequency boundaries for the flanger sweep.
Feedback	This determines the character of the flanger effect. Higher settings produce a more "metallic" sounding sweep.
Spatial	This sets the stereo width of the effect. Turn clockwise for a wider stereo effect.
Mix	Sets the level balance between the dry signal and the effect. If the Flanger is used as a send effect, this should be set to maximum as you can control the dry/effect balance with the send.
Shape	This changes the shape of the modulating waveform, altering the character of the flanger sweep.
Delay	This parameter affects the frequency range of the modulation sweep, by adjusting the initial delay time.
Manual	If this is activated, the flanger sweep will be static, i.e. no modulation. You can instead change the sweep position manually by turning this knob.
Filter Lo/Hi	These parameters allow you to roll off low and high frequencies of the effect signal, respectively.



# Metalizer



The Metalizer feeds the audio signal through a variable frequency filter, with tempo sync or time modulation and feedback control.

Parameter	Description
Feedback	The higher the value, the more “metallic” the sound.
Sharpness	Governs the character of the filter effect. The higher the value, the narrower the affected frequency area, producing sharper sound and a more pronounced effect.
Tone	Governs the feedback frequency. The effect of this will be more noticeable with high Feedback settings.
On button	Turns filter modulation on and off. When turned off, the Metalizer will work as a static filter.
Mono button	When this is on, the output of the Metalizer will be in mono.
Speed	If tempo sync is on, this is where you specify the base note value for tempo-syncing the effect (1/1 to 1/32, straight, triplet or dotted). Note that there is no note value modifier for this effect. If tempo sync is off, the modulation speed can be set freely with the Speed knob, without sync to tempo.
Tempo sync on/off	The button above the Speed knob is used to switch tempo sync on or off. The button is lit when tempo sync is on.
Output	Sets the overall volume.
Mix	Sets the level balance between the dry signal and the effect. If Metalizer is used as a send effect, this should be set to maximum as you can control the dry/effect balance with the send.

# Phaser



Phaser produces the well-known “swooshing” phasing effect with additional stereo enhancement.

The parameters are as follows:

Parameter	Description
Tempo sync on/off	The button below the Rate knob is used to switch tempo sync on or off. The button is lit when tempo sync is on.
Rate	If tempo sync is on, this is where you specify the base note value for tempo syncing the phaser sweep (1/1 to 1/32, straight, triplet or dotted). If tempo sync is off, the sweep rate can be set freely with the Rate knob, without sync to tempo.
Width	The width of the modulation effect between higher and lower frequencies.
Feedback	This determines the character of the phaser effect. Higher settings produce a more pronounced effect.
Spatial	When using multi-channel audio, Spatial creates a 3-dimensional impression by delaying modulation in each channel.
Mix	Sets the level balance between the dry signal and the effect. If the Phaser is used as a send effect, this should be set to maximum as you can control the dry/effect balance with the send.
Manual	If this is activated, the phaser sweep will be static, i.e. no modulation. You can instead change the sweep position manually by turning this knob.
Filter Lo/Hi	These parameters allow you to roll off low and high frequencies of the effect signal, respectively.



# Ringmodulator



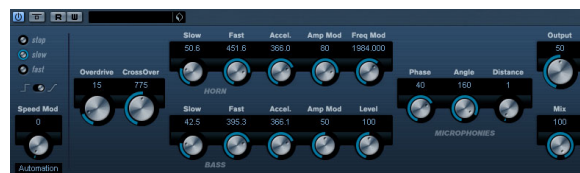
The Ringmodulator can produce complex, bell-like enharmonic sounds. Ring modulators work by multiplying two audio signals. The ring modulated output contains added frequencies generated by the sum of, and the difference between, the frequencies of the two signals.

The Ringmodulator has a built-in oscillator that is multiplied with the input signal to produce the effect.

Parameter	Description
Oscillator LFO Amount	Controls how much the oscillator frequency is affected by the LFO.
Oscillator Env. Amount	Controls how much the oscillator frequency is affected by the envelope (which is triggered by the input signal). Positive and negative values can be set, with center position representing no modulation. Left of center, a loud input signal will decrease the oscillator pitch, whereas right of center the oscillator pitch will increase when fed a loud input.
Oscillator Wave	Selects the oscillator waveform; square, sine, saw or triangle.
Oscillator Range	Determines the frequency range of the oscillator in Hz.
Oscillator Frequency	Sets the oscillator frequency +/- 2 octaves within the selected range.
Oscillator Roll-Off	Cuts high frequencies in the oscillator waveform, to soften the overall sound. This is best used when harmonically rich waveforms are selected (e.g. square or saw).
LFO Speed	Sets the LFO Speed.
LFO Env. Amount	Controls how much the input signal level – via the envelope generator – affects the LFO speed. Positive and negative values can be set, with center position representing no modulation. Left of center, a loud input signal will slow down the LFO, whereas right of center a loud input signal will speed it up.

Parameter	Description
LFO Waveform	Selects the LFO waveform; square, sine, saw or triangle.
Invert Stereo	This inverts the LFO waveform for the right channel of the oscillator, which produces a wider stereo perspective for the modulation.
Envelope Generator (Attack and Decay dials)	The Envelope Generator section controls how the input signal is converted to envelope data, which can then be used to control oscillator pitch and LFO speed. It has two main controls: Attack sets how fast the envelope output level rises in response to a rising input signal. Decay controls how fast the envelope output level falls in response to a falling input signal.
Lock L<R	When this button is enabled, the L and R input signals are merged, and produce the same envelope output level for both oscillator channels. When disabled, each channel has its own envelope, which affects the two channels of the oscillator independently.
Output	Sets the overall volume.
Mix	Adjusts the mix between dry and processed signal.

# Rotary



The Rotary plug-in simulates the classic effect of a rotary speaker. A rotary speaker cabinet features variable speed rotating speakers to produce a swirling chorus effect, commonly used with organs. Rotary features all the parameters associated with the real thing.

The parameters are as follows:

Parameter	Description
Speed (Stop/Slow/Fast)	This controls the speed of the Rotary in three steps.
Mode	Selects whether the Slow/Fast setting is a switch or a variable control. When switch mode is selected and Pitchbend is the controller, the speed will switch with an up or down flick of the bender. Other controllers switch at 64.
Speed Mod	Selects the Rotary speed from 0 (Stop) to 100 (Fast).
Overdrive	Applies a soft overdrive or distortion.
CrossOver	Sets the crossover frequency (200–3000Hz) between the low and high frequency loudspeakers.

Parameter	Description
Slow	Fine adjustment of the high rotor Slow speed.
Fast	Fine adjustment of the high rotor Fast speed.
Accel.	Fine adjustment of the high rotor acceleration time.
Amp Mod	High rotor amplitude modulation.
Freq Mod	High rotor frequency modulation.
Slow	Fine adjustment of the low rotor Slow speed.
Fast	Fine adjustment of the low rotor Fast speed.
Accel.	Fine adjustment of the low rotor acceleration time.
Amp Mod	Adjusts amplitude modulation depth.
Level	Adjusts overall bass level.
Phase	Adjusts the phasing amount in the sound of the high rotor.
Angle	Sets the simulated microphone angle. 0 = mono, 180 = one mic on each side.
Distance	Sets the simulated microphone distance from the speaker in inches.
Output	Adjusts the overall output level.
Mix	Adjusts the mix between dry and processed signals.

### Directing MIDI to the Rotary

For real-time MIDI control of the Speed parameter, MIDI must be directed to the Rotary.

- Whenever the Rotary has been added as an insert effect (for an audio track or an FX channel), it will be available on the Output Routing pop-up menu for MIDI tracks. If Rotary is selected on the "out:" menu, MIDI will be directed to the plug-in from the selected track.

## Tranceformer

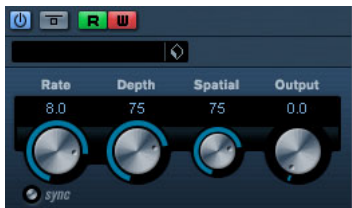


Tranceformer is a ring modulator effect, in which the incoming audio is ring modulated by an internal, variable frequency oscillator, producing new harmonics. A second oscillator can be used to modulate the frequency of the first oscillator, in sync with the Song tempo if needed.

Parameter	Description
Waveform buttons	Sets the pitch modulation waveform.
Tone	Sets the frequency (pitch) of the modulating oscillator (1 to 5000Hz).
Depth	Governs the depth of the pitch modulation.
Speed	If tempo sync is on, this is where you specify the base note value for tempo-syncing the effect (1/1 to 1/32, straight, triplet or dotted). Note that there is no note value modifier for this effect. If tempo sync is off, the modulation speed can be set freely with the Speed knob, without sync to tempo.
Tempo sync on/off	The button above the Speed knob is used to switch tempo sync on or off. The button is lit when tempo sync is on.
On button	Turns modulation of the pitch parameter on or off.
Mono button	Governs whether the output will be stereo or mono.
Output	Adjusts the output level of the effect.
Mix	Sets the level balance between the dry signal and the effect.

⇒ Note that clicking and dragging in the display allows you to adjust the Tone and Depth parameters at the same time!

# Tremolo

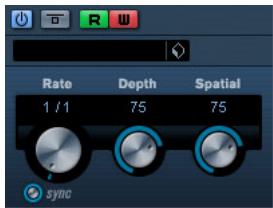


Tremolo produces amplitude (volume) modulation.

Parameters are as follows:

Parameter	Description
Rate	If tempo sync is on, this is where you specify the base note value for tempo-syncing the effect (1/1 to 1/32, straight, triplet or dotted). If tempo sync is off, the modulation speed can be set freely with the Rate knob, without sync to tempo.
Tempo sync on/off	The button below the Rate knob is used to switch tempo sync on or off. The button is lit when tempo sync is on.
Depth	This governs the depth of the amplitude modulation.
Spatial	This will add a stereo effect to the modulation.
Output	Adjusts the output volume.

# Vibrato



The Vibrato plug-in produces pitch modulation.

Parameter	Description
Rate	If tempo sync is on, this is where you specify the base note value for tempo-syncing the effect (1/1 to 1/32, straight, triplet or dotted). If tempo sync is off, the modulation speed can be set freely with the Rate knob, without sync to tempo.
Tempo sync on/off	The button below the Rate knob is used to switch tempo sync on or off. The button is lit when tempo sync is on.
Depth	This governs the depth of the pitch modulation.
Spatial	This will add a stereo effect to the modulation.

# Other plug-ins

This section contains descriptions of the plug-ins in the “Others” category.

# Bitcrusher



If you're into lo-fi sound, Bitcrusher is the effect for you. It offers the possibility of decimating and truncating the input audio signal by bit reduction, to get a noisy, distorted sound. You can for example make a 24-bit audio signal sound like an 8 or 4-bit signal, or even render it completely garbled and unrecognizable. The parameters are:

Parameter	Description
Mode	Select one of four operating modes for the Bitcrusher. Each mode will produce a result sounding a bit different. Modes I and III are nastier and noisier, while modes II and IV are more subtle.
Sample Divider	This sets the amount by which the audio samples are decimated. At the highest setting (65), nearly all of the information describing the original audio signal will be eliminated, turning the signal into unrecognizable noise.
Depth	Use this to set the desired bit resolution. A setting of 24 gives the highest audio quality, while a setting of 1 will create mostly noise.
Output	Governs the output level from the Bitcrusher. Drag the slider upwards to increase the level.
Mix	This slider regulates the balance between the output from the Bitcrusher and the original audio signal. Drag the slider upwards for a more dominant effect, and drag it downwards if you want the original signal to be more prominent.

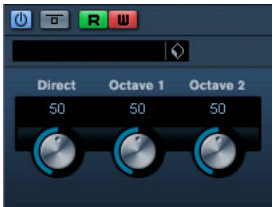
# Chopper



Chopper is a combined tremolo and autopan effect. It can use different waveforms to modulate the level (tremolo) or left-right stereo position (pan), either using tempo sync or manual modulation speed settings. The parameters are as follows:

Parameter	Description
Waveform buttons	Sets the modulation waveform.
Depth	Sets the depth of the Chopper effect. This can also be set by clicking in the graphic display.
Speed	If tempo sync is on, this is where you specify the base note value for tempo-syncing the effect (1/1 to 1/32, straight, triplet or dotted). Note that there is no note value modifier for this effect. If tempo sync is off, the tremolo/auto-pan speed can be set freely with the Speed knob, without sync to tempo.
Tempo sync on/off	The button above the Speed knob is used to switch tempo sync on (the button lights up) or off.
Stereo/Mono button	Determines whether the Chopper will work as an auto-panner (button set to "Stereo") or a tremolo effect (button set to "Mono").
Mix	Sets the level balance between the dry signal and the effect. If Chopper is used as a send effect, this should be set to maximum.

# Octaver



This plug-in can generate two additional voices that track the pitch of the input signal one octave and two octaves below the original pitch, respectively. Octaver is best used with monophonic signals. The parameters are as follows:

Parameter	Description
Direct	This adjusts the mix of the original signal and the generated voice(s). A value of 0 means only the generated and transposed signal is heard. By raising this value, more of the original signal is heard.
Octave 1	This adjusts the level of the generated signal one octave below the original pitch. Set to 0 means the voice is muted.
Octave 2	This adjusts the level of the generated signal two octaves below the original pitch. Set to 0 means the voice is muted.

# Tuner



This is a guitar tuner. Simply connect a guitar or other instrument to an audio input and select the Tuner as an insert effect (make sure you deactivate any other effect that alters pitch, like chorus or vibrato). When the instrument is connected, proceed as follows:

- **Play a note.**

The key is shown in the middle of the display. In addition, the frequency in Hz is shown in the bottom left corner and the octave range in the bottom right corner. If the key is wrong (e.g. if you wish to tune the E string and the key is shown as Fb), first tune the string so that the correct key is shown.

- **The two arrows indicate any deviation in pitch by their position. If the pitch is flat, they will be positioned in the left half of the display, if the pitch is sharp they will be in the right half.**

The deviation is also shown (in Cent) in the upper area of the display.

- **Tune the instrument so that the two arrows are in the middle.**

Repeat this procedure for each string.

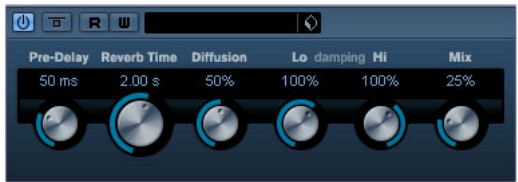
# Restoration plug-ins – Grungelizer



The Grungelizer adds noise and static to your recordings – kind of like listening to a radio with bad reception, or a worn and scratched vinyl record. The available parameters are as follows:

Parameter	Description
Crackle	This adds crackle to create that old vinyl record sound. The farther to the right you turn the dial, the more crackle is added.
RPM switch	When emulating the sound of a vinyl record, this switch lets you set the RPM (revolutions per minute) speed of the record (33/45/78 RPM).
Noise	This dial regulates the amount of static noise added.
Distort	Use this dial to add distortion.
EQ	Turn this dial to the right to cut off the low frequencies, and create a more hollow, lo-fi sound.
AC	This emulates a constant, low hum of AC current.
Frequency switch	This sets the frequency of the AC current (50 or 60Hz), and thus the pitch of the AC hum.
Timeline	This dial regulates the amount of overall effect. The farther to the right (1900) you turn this dial, the more noticeable the effect.

# Reverb plug-ins – RoomWorks SE



RoomWorks SE is a high-quality reverb plug-in. This plug-in has the following parameters:

Parameter	Description
Pre-Delay	The amount of time before the onset of reverb. This allows you to simulate larger spaces by increasing the time it takes for first reflections to reach the listener.
Reverb Time	Reverb Time in seconds.
Diffusion	This affects the character of the reverb tail. Higher diffusion is smoother while less diffusion can be clearer. This emulates changing the types of surfaces in a room (brick vs. carpet for instance).
High Level Amount	This affects the decay time of high frequencies. Normal room reverb decays quicker in the high and low frequency range than in the midrange. Lowering the level percentage will cause high frequencies to decay quicker. Values above 100% will cause high frequencies to decay longer than the midrange.
Low Level Amount	This affects the decay time of low frequencies. Normal room reverb decays quicker in the high and low frequency range than in the midrange. Lowering the level percentage will cause low frequencies to decay quicker. Values above 100% will cause low frequencies to decay longer than the midrange.
Mix	Determines the blend of dry (unprocessed) signal to wet (processed) signal. When using RoomWorks SE inserted in an FX channel, you will most likely want to set this to 100% or use the Send button.

# Spatial plug-ins

This section contains descriptions of the plug-ins in the “Spatial” category.

## MonoToStereo



This effect will turn a mono signal into a “pseudo-stereo” signal. The plug-in must be inserted on a stereo track playing a mono file to work.

The parameters are as follows:

Parameter	Description
Width	This controls the width or depth of the stereo enhancement. Turn clockwise to increase the enhancement.
Delay	This parameter increases the amount of differences between the left and right channels to further increase the stereo effect.
Color	This parameter also generates differences between the channels to increase the stereo effect.
Mono	This switches the output to mono, to check for possible unwanted coloring of the sound which sometimes can occur when creating an artificial stereo image.

# StereoEnhancer



This plug-in will expand the stereo width of (stereo) audio material. It cannot be used with mono files.

The parameters are as follows:

Parameter	Description
Width	This controls the width or depth of the stereo enhancement. Turn clockwise to increase the enhancement.
Delay	This parameter increases the amount of differences between the left and right channels to further increase the stereo effect.
Color	This parameter also generates differences between the channels to increase the stereo enhancement.
Mono	This switches the output to mono, to check for possible unwanted coloring of the sound which sometimes can occur when enhancing the stereo image.

**2**

**HALionOne**



# Introduction



HALionOne is a sample player that can play sound content in the \*.hsb (HALion Sound Bank) format. These samples have associated preset files that store the panel settings and reference the HSB samples. Included are several presets (as \*.vstpreset and \*.trackpreset files).

The operation of HALionOne is very simple; load a preset (a \*.vstpreset or a \*.trackpreset file for an Instrument Track) and start playing! You do, however, have the option to tweak the basic parameters to tailor the sound to your liking.

## HALionOne parameters

The HALionOne differs from other VST Instruments in that the panel parameters shown can vary according to which parameters are stored in the HSB file. HSB files cannot be created with HALionOne, and HALionOne reads only the HSB files supplied with Cubase AI. In these files, certain parameters are assigned as part of the file and the associated program (or preset). This means that for each preset, only these assigned parameters are shown on the instrument panel. Typically, these are filter cutoff, DCA and DCF parameters and any assigned effect parameters (the effects are “built in”).

If you load HALionOne for an Instrument track and select, for example, the “Draw Organ” preset, the following parameters are shown:

Parameter	Description
Cutoff	This allows you to adjust filter frequency or cutoff. The filter used is a Waldorf Low Pass filter with a 24 dB slope.
Resonance	Raising the filter resonance value will emphasize the frequencies around the set filter frequency.
DCF Amount	Controls the amount of the DCF (filter) envelope.
DCA Attack	Controls the time it takes for the DCA signal to reach its highest level.

Parameter	Description
DCA Decay	Controls the time it takes the DCA signal to decay to the sustain level.
DCA Sustain	Controls the DCA signal level after the Decay phase, as long as you press the key on your MIDI keyboard.
DCA Release	Controls the DCA signal after a key is released.
DCA Amount	Controls the amount of the DCA (amplifier) envelope.

These parameter assignments are used for many of the HALionOne presets, but not for all. As stated above, other parameters may be shown; these will be clearly labelled on the panel. For most of the presets there are also associated effects – the effect parameters are usually assigned to the quick controls on the right and typically control the dry/wet mix of the effect.

### Effects Usage

- This button, located at the bottom right in the box displaying the preset name, allows you to bypass any effects. The blue LED beside the button is lit if any effects are used in the preset.

### Efficiency slider

The Efficiency slider provides a way of balancing audio quality vs. conservation of computer power. The lower the setting, the more voices are available. As a trade-off, sound quality is reduced.

### Voices allocated

- The Voices field dynamically displays the number of voices currently used.

### MIDI and Disk activity LEDs

The MIDI activity LED indicates received MIDI input. The Disk LED will light up green when samples are streamed from disk, and red when samples cannot be loaded from disk in time. In such a case you should consider lowering the Efficiency slider. When the disk LED doesn't light up, samples are read from memory.

## Locate Contents

If you have moved the HALionOne content files to a different location (i.e. any other location than the folder in which it was stored at installation time), you need to use the Locate Contents function to inform HALion One about where to find its files. This is done as follows:

- Right-click anywhere on the control panel and select “Locate contents”.

A file dialog opens where you can navigate to the folder location.

## HALionOne and MIDI files

When the Preferences option “Import to Instrument Tracks” is activated (on the MIDI–MIDI File page), importing a MIDI file into Cubase AI will automatically set up instrument tracks, with HALionOne as the associated instrument. This allows you to quickly audition any imported MIDI files, to change parameter settings or to add effects, etc.

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